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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Edward C. Benzel, et al.  
Filing Date : herewith  
For : METHOD AND APPARATUS FOR  
REPLACING A DAMAGED SPINAL DISC  
Attorney Docket No. : AXM-6667

Mail Stop New Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

Sir:

This information disclosure statement is being filed to fulfill the duty of candor and good faith toward the Patent and Trademark Office, in accordance with 37 CFR §1.56.

Below is a list of information of which persons substantively involved in the preparation of the application identified above, are aware and believe that a reasonable Examiner may consider important in deciding whether to allow the application. This statement is not a representation that no other relevant information exists, and is not an admission that any of the items is material as defined in 37 CFR §1.56(b). Copies of the listed foreign patents and other publications are enclosed. In accordance with 37 CFR §1.98(a) (2) (iii), copies of listed U.S. Patents and U.S. Patent Applications are not enclosed. A PTO Form 1449 is attached.

**FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE  
(REV. 6-89) PATENT AND TRADEMARK OFFICE**

ATTY DOCKET NO.: AXM-6667

SERIAL NO. NA

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

APPLICANT: Benzel, et al.

*(Use several sheets if necessary)*

FILING DATE: herewith

GROUP: NA

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL	DOCUMENT NUMBER							DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	4	8	6	3	4	7	7	Sep. 5, 1989	Monson	623	17	
	4	9	1	1	7	1	8	Mar. 27, 1990	Lee et al.	623	17	
	4	9	3	2	9	6	9	Jun. 12, 1990	Frey et al.	623	17	
	5	3	2	0	6	4	4	Jun. 14, 1994	Baumgartner	623	17	
	5	3	7	0	6	9	7	Dec. 6, 1994	Baumgartner	623	17	
	5	4	0	1	2	6	9	Mar. 28, 1995	Buttner-Janz et al.	623	17	
	5	5	4	5	2	2	9	Aug. 13, 1996	Parsons et al.	623	17	
	5	5	7	1	1	0	9	Nov. 5, 1996	Bertagnoli	606	61	
	5	6	7	4	2	9	4	Oct. 7, 1997	Bainville et al.	623	17	
	5	6	7	6	7	0	2	Oct. 14, 1997	Ratron	623	17	
	5	8	2	4	0	9	4	Oct. 20, 1998	Serhan et al.	623	17	
	5	8	9	3	8	8	9	Apr. 13, 1999	Harrington	623	17	
	6	1	1	3	6	3	8	Sep. 5, 2000	Williams et al.	623	17	

**FOREIGN PATENT DOCUMENTS**

	DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION	
												YES	NO
	0	4	1	0	6	0	3	5	Mar. 30, 1992	Japan		X	

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	"Physical Properties and Functional Biomechanics of the Spine", Chapter 1, pages 1-19 and Reference pages 77-83
	"Requirements for an Artificial Intervertebral Disc", Chapter 2, by Eijkelkamp, et al., Pages 25-42

EXAMINER

DATE CONSIDERED

**EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP §609;  
Draw line through citation if not in conformance and not considered. Include copy of this form with next  
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FORM PTO-1449  
(REV. 6-89)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.: AXM-6667

SERIAL NO. N/A

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APPLICANT(S): Benzel, et al.

FILING DATE: herewith

GROUP: N/A

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	6 1 5 6 0 6 7	Dec. 5, 2000	Bryan et al.	623	17	
	6 2 3 1 6 0 9	May 15, 2001	Mehdizadeh	623	17.11	
	6 2 9 6 6 6 4	Oct. 2, 2001	Middleton	623	17.15	
	6 4 0 2 7 8 5	Jun. 11, 2002	Zdeblick et al.	623	17.16	
	6 4 1 9 7 0 6	Jul. 16, 2002	Graf	623	17.16	
	6 4 5 4 8 0 6	Sep. 24, 2002	Cohen et al.	623	17.15	
	6 6 0 7 5 5 8	Aug. 19, 2003	Kuras	623	17.16	
	6 5 3 3 8 1 8	Mar. 18, 2003	Weber et al.	623	17.16	
	0 0 1 6 7 7 4	Aug. 23, 2001	Bresina et al.	623	17.15	Apr. 11, 2001
	0 1 1 6 0 0 9	Aug. 22, 2002	Fraser et al.	606	99	Dec. 7, 2001
	0 0 4 5 9 3 9	Mar. 6, 2003	Casutt	623	17.15	Aug. 23, 2002
	0 0 7 4 0 7 1	Apr. 17, 2003	Errico et al.	623	17.14	Nov. 14, 2002
	0 0 7 4 0 7 6	Apr. 17, 2003	Ferree et al.	623	17.16	Nov. 25, 2002

**FOREIGN PATENT DOCUMENTS**

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION
					YES NO

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	"Mechanical Properties of Human Lumbar Spine Motion Segments Part II: Responses in Compression and Shear Influence of Gross Morphology", by Berkson, et al., Journal of Biomechanical Engineering February 1979, Vol. 101 pages 53-57
	"Some Static Mechanical Properties of the Lumbar Intervertebral Joint, Intact and Injured", by Tencer, et al., Journal of Biomechanical Engineering, August 1982, Vol. 104, pages 193-201
	"Variation of Lumbar Spine Stiffness with Load", by Edwards, et al., Journal of Biomechanical Engineering, February 1987, Vol. 109, pages 35-42
	"Limitations of the Standard Linear Solid Model of Intervertebral Discs Subject To Prolonged Loading And Low-Frequency Vibration In Axial Compression", by Li, et al., J. Biomechanics, Vol. 28, No. 7 Pages 779-790, 1995

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 communication to the patent applicants' attorney.


**U.S. Patents**

U.S. Patent No. 4,863,477	U.S. Patent No. 6,156,067
U.S. Patent No. 4,911,718	U.S. Patent No. 6,231,609
U.S. Patent No. 4,932,969	U.S. Patent No. 6,296,664
U.S. Patent No. 5,320,644	U.S. Patent No. 6,402,785
U.S. Patent No. 5,370,697	U.S. Patent No. 6,419,706
U.S. Patent No. 5,401,269	U.S. Patent No. 6,454,806
U.S. Patent No. 5,545,229	U.S. Patent No. 6,607,558
U.S. Patent No. 5,571,109	U.S. Patent No. 6,533,818
U.S. Patent No. 5,674,294	U.S. Pub. No. 2001/0016774 A1
U.S. Patent No. 5,676,702	U.S. Pub. No. 2002/0116009 A1
U.S. Patent No. 5,824,094	U.S. Pub. No. 2003/0045939 A1
U.S. Patent No. 5,893,889	U.S. Pub. No. 2003/0074071 A1
U.S. Patent No. 6,113,638	U.S. Pub. No. 2003/0074076 A1

**Other - Publications**

Japanese Patent Application No. 04106035	English Abstract provided
"Physical Properties and Functional Biomechanics of the Spine", Chapter 1, pages 1-19 and Reference pages 77-83	
"Mechanical Properties of Human Lumbar Spine Motion Segments Part II: Responses in Compression and Shear Influence of Gross Morphology", by Berkson, et al., Journal of Biomechanical Engineering February 1979, Vol. 101 pages 53-57	
"Some Static Mechanical Properties of the Lumbar Intervertebral Joint, Intact and Injured", by Tencer, et al., Journal of Biomechanical Engineering, August 1982, Vol. 104, pages 193-201	
"Variation of Lumbar Spine Stiffness with Load", by Edwards, et al., Journal of Biomechanical Engineering, February 1987, Vol. 109, pages 35-42	
"Limitations of the Standard Linear Solid Model of Intervertebral Discs Subject To Prolonged Loading And Low-Frequency Vibration In Axial Compression", by Li, et al., J. Biomechanics, Vol. 28, No. 7 Pages 779-790, 1995	
"Requirements for an Artificial Intervertebral Disc", Chapter 2, by Eijkelkamp, et al., Pages 25-42	
New U.S. Benzal, et al. patent application for METHOD AND APPARATUS FOR REPLACING A DAMAGED SPINAL DISC, filed December 10, 2003, Attorney Docket No. AXM-6666.	
New U.S. Kuras, et al. patent application for METHOD AND APPARATUS FOR REPLACING A DAMAGED SPINAL DISC, filed December 10, 2003, Attorney Docket No. AXM-6668.	

Respectfully submitted,

  
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